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THE

CANADIAN NATURALIST.

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THE

CANADIAN NATURALIST.

A SERIES OF CONVERSATIONS

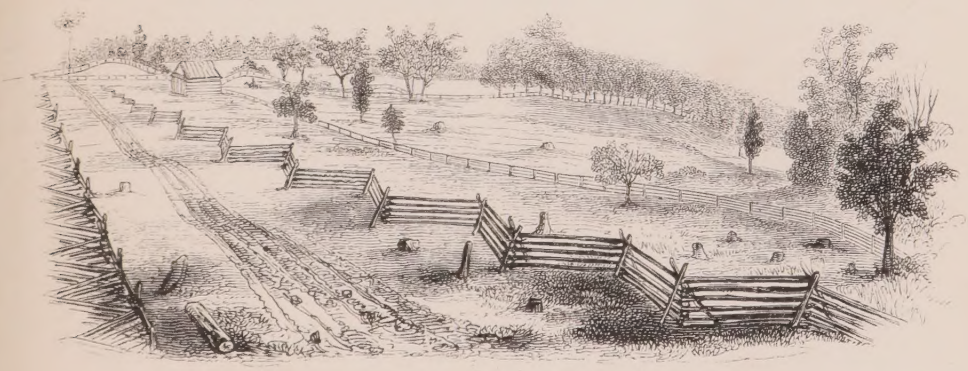
ON THE

NATURAL HISTORY OF LOWER CANADA.

BY

P. H. GOSSE.

COR. MEM. OF THE NAT. HIST. SOC. OF MONTREAL, AND OF THE LIT. AND HIST. SOC. OF QUEBEC.



"Every kingdom, every province, should have its own monographer."
GILBERT WHITE.

ILLUSTRATED BY FORTY-FOUR ENGRAVINGS.

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THOMAS BELL, ESQ. F.R.S. F.L.S. &c.

PROFESSOR OF ZOOLOGY IN KING'S COLLEGE, LONDON,

THIS LITTLE VOLUME,

AS A SMALL TOKEN OF ESTEEM FOR HIS VIRTUES,

AND OF ADMIRATION OF HIS TALENTS,

IS AFFECTIONATELY INSCRIBED,

BY HIS GRATEFUL RELATIVE,

THE AUTHOR.

PREFACE.

CANADA having become, of late, a very prominent and engrossing object of attention, it is hoped that it may not be altogether uninteresting to the public, to consider it in a new point of view. It is here presented in a light on which there can be no clashing of opinion, no discordancy of sentiment: the smiling face of Nature, the harmony and beauty of the works of God, may be turned to by men of all parties as a refreshing relief from the stern conflict of political warfare. During a residence of some years in the Lower Province, the Author has felt it to be no common privilege to be able to solace himself by these simple but enchanting studies, amidst the fatigues of labour, and the stormy politics and martial alarms of the times; and even now, the recollection of those pleasant scenes sheds forth a lustre which gilds the

edge of many a dark cloud. He does not expect by written words to be able to communicate the vividness of those impressions which are produced by actual observation; it will suffice, if an additional source of innocent gratification be pointed out, or an additional testimony borne to the wisdom and goodness of our beneficent Creator.

The plan of the Work consists of a series of conversations on the subject of natural history, supposed to pass between a father and son, during successive walks, taken at the various seasons of the year: so that it may be considered as in some degree a kind of Canadian "Naturalist's Calendar." As the form of dialogue has of late become somewhat "out of fashion," the Author feels it to be due to the public to explain the reasons which induced him to throw the Work into such a shape. He thought that by taking the reader, as it were, and transporting him into the midst of the very scenes and objects represented, a life and a vigour might be preserved, which would be wanting in a formal narrative. And many little trifles might be thus touched, which could be noticed in no other form, but which, nevertheless, all help to make up a true picture. Thus, too, we may ramble from one subject to another (as the humming-bird waywardly shoots from flower to flower), often by a transition more abrupt than could be permitted in a systematic discourse. If these transitions in any case appear to be *too*

abrupt, the reader is at liberty to suppose the lapse of what interval he pleases between the former and latter subjects; or the notice of any passing occurrence, which has changed the current of conversation. Of course, the subject is very far from being exhausted: the Author has confined his remarks, with very few exceptions, to those phenomena which have passed under his personal observation: and every one acquainted with out-of-door natural history, knows that each recurring season presents to the admiring observer facts that were before hidden and unknown.

A word respecting the character of the Work. The Author is fully aware how very limited is his acquaintance with this boundless science; having lived in the far-off wilds of the west, where systems, books, and museums are almost unknown, he has been compelled to draw water from Nature's own well, and his knowledge of her is almost confined to her appearance in the forest and the field. With the systems, which men of enlarged minds have, with patient perseverance and studious research, arranged, — the most laborious, but not the least useful part of the science, — he has had little opportunity of making himself familiar. It may be asked, "why, then, under these disadvantages, has he written at all?" Not to instruct the learned, at whose feet he is willing to sit as a learner; but partly to set forth the praise of the great and glorious God, who

made all these things, and partly because, having himself tasted the calm delights flowing from an observation of His works, he would fain make known to others the source of the same sweet and soothing pleasures.

Of the illustrations, three are from the pencil of Mr. Dickes; the remainder are from original drawings by the Author, transferred to the wood partly by himself, and partly by Mr. James de Carl Sowerby.

It merely remains to add, that the village of Compton, in the immediate neighbourhood of which these observations were made, is situated on the river Coatacook, a tributary of the St. Francis, in the county of Sherbrooke, in what are called the Eastern Townships of Lower Canada; very near the angle formed by a line drawn south from Quebec, and one drawn east from Montreal. It is thirteen miles distant from the town of Sherbrooke, and about twenty from the border of the State of Vermont.

London, Jan. 1840.

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sent; the felled ones are cut in lengths, and piled with the limbs on the brush heaps. All these have been cut quite close to the ground, so that the stumps may offer no obstruction to the harrow: all being piled, nothing remains but to fell the large trees, which is done at about two feet from the ground, the stumps being permitted to remain till the gradual decomposition of the roots allows of their extraction: a work of years. The trunks of the trees are now chopped into lengths, those which are useful for fencing placed by themselves to be removed, and the remainder, by the efforts of oxen with chains, and men with levers, are piled one upon another, and the tops thrown into heaps as before. In this state everything remains during the summer, exposed to the burning sun of July, August, and September, which dries up a good deal of the moisture, and makes the heaps fit to burn. In the fall, advantage is taken of a dry time to put fire to the logs and brush, which burn rapidly, and are usually consumed, with the exception of some remnants of the log heaps, which are piled together for a final burning. The running of the fires over the ground kills every vegetable, and the fertilizing ashes make the whole in good order for culture. The plough is not put into the ground for some years, until the small stumps and roots have decayed: it is merely harrowed over, the virgin earth being soft and mellow, and grain is sowed with grass seed. After the first crop, it remains in grass for several years. Such is the ordinary practice, slightly varying, according to circumstances.

C. — Are no young trees ever left for ornament?

F. — Were it possible to do so, they would be anything but ornamental; for a young forest-tree is nothing more than a very tall hop-pole with a few leaves at the top: but the fires would be sure to kill them, if such were spared by the axe and hook. Ornamental trees must, in general, be

planted, or spring up spontaneously; and this sufficiently accounts for what travellers think so strange in a forest country, the general want of trees about the homestead, roadsides, &c.: farmers in general being too much employed to pay attention to planting for ornament.

C. — Let us walk into the forest.—What a sombre gloom prevails; the more striking, as contrasting with the bright sunlight we have left. Scarce a ray here and there can penetrate through the leafy canopy, that almost fatigues the eye to look up to it. Yet that is the most cheerful part of the scene; for there the leaves, so brightly green, are dancing and sparkling in the light; while we, far below, are in shade.

F. — The gloom and solitude of the interior of the forest have invariably a solemnizing influence on my mind: an awe like that which one feels amidst the timeworn pillars of an ancient cathedral; which these grey and moss-grown trunks greatly resemble.

C. — How old do you suppose these large elms to be?

F. — I cannot tell: probably they were rearing their slender stems years before Jacques Cartier explored the St. Lawrence, or even before the chivalrous Genoese launched his frail bark on the grim Atlantic. The concentric circles around the heart of a tree are, however, believed to give a correct estimate of its age, one being made every year: we can count the rings in some of these logs that have been felled. ———

C. — I have counted one; an ash of about eighteen inches in diameter, which has but one hundred and sixty circles.

F. — I chose this hemlock log, about two feet in diameter: if this be a true criterion, this tree must be three hundred and ninety-five years old, which carries us back to a period fifty years before the first voyage of Columbus. But what is this? what is the age of the largest tree in these forests

to the celebrated Baobab of Adanson, or the Cypress of Decandolle, both of which are believed to be nearly as old as the deluge? The former is in Senegal, the latter in Mexico.

C. — Does a tree invariably die when it is cut down?

F. — Oh no: the stump often sends out fresh shoots, which are remarkable for the vigour of their growth, and for the great size of their leaves. I have seen an ash stump throw out a shoot six feet long in a single season, with the leaflets eight inches in length; and maples in a similar proportion, with leaves near a foot in diameter. These fresh shoots and suckers often cause the farmer much trouble, by springing up in ground that he has cleared. If deprived of their leaves in July or August, however, the stock will die; and so it will if the tree be cut down at that season. Very large trees do not usually send out new shoots after being cut down, under any circumstances, or at any season.

C. — Butterflies of several kinds are now numerous on sunny days, especially about the borders of the woods; but very few are to be found actually within the forest. I have noticed the appearance of several new species; the first of which was the Pearl-crescent Fritillary *(Melitæa Tharos)*, a pretty little fly, with the tawny wings marked with yellow and black; the female differs so much from the male that I took it for a distinct species, till further observation showed me their identity. A rather pretty little Skipper, the Chequered Skipper, *(Pamphila Paniscus?)* has also appeared, but I have taken only a single specimen.

F. — It is very rare.

C. — Another species would be perhaps the most splendid butterfly we have, if its size corresponded with its beauty: I mean the Small Copper *(Lycæna Phleas)* which now occasionally flits about the roads. The richness of the glowing flame-coloured wings is worthy of admiration, and the under

surface is very delicate : and I do not see that it is less beautiful because it is diminutive ; though if it were as large as a Swallow-tail or a Camberwell Beauty, it would strike the attention more readily.

F. — There is often considerable diversity in the vividness of colour of different individuals of the same species of butterfly or moth ; one being much more beautiful than another ; in the *same individual*, however, one wing in general

LARVA, PUPA, AND IMAGO OF THE BANDED PURPLE.

(*Limenitis Arthemis.*)

exactly corresponds with the other, its fellow. But I once took a Small Copper in the month of September, which had a very apparent difference in the colour of the wings; the left fore-wing being much lighter on *both* surfaces than the right, though neither was defaced in any degree. It was resting on a stalk of grass, and was unwilling to fly, the weather being cold with misty rain. It was unusual to find a butterfly abroad in such weather. In the same month, one that I had taken laid nine eggs; they were small, nearly round, flesh-coloured, appearing under the magnifier covered with indentations.

C. — I took from an elm tree, on the leaves of which it was feeding, a large and handsome caterpillar, mottled with white and greyish green, with two spinous horns on the second segment, and two prominences on the fifth. It went into pupa on the 15th, suspended by the tail; the chrysalis has a remarkable prominence on the back.

F. — It will continue in the pupa state about a fortnight, and then produce the Banded Purple Butterfly *(Limenitis Arthemis)*.

C. — I have also obtained a caterpillar of the Forked Butterfly *(Vanessa Furcillata)*, and two or three of another kind, spinous, greenish, with a flat white back: they were feeding on the common nettle.

F. — They produce the Orange Comma. *(Grapta C. Album?)* I perceive a moth, of the division *Bombyx*, has been produced from the cocoon of a yellow, hairy caterpillar, which I took from a poplar tree at Quebec, on the 30th of last July: it spun its cocoon in a corner of a box a few days afterward, so that the moth has been nearly eleven months in pupa, a most unusual while. It is an unnamed species.

C. — I have had some *Bombyces* evolved this week, from cocoons produced by caterpillars, which I obtained last autumn. The Buff-Leopard *(Arctia Isabella)* and the Muff

(Lophocampa Tesselaris) are pretty moths; the Brindled *(Biston Hirtarius?)* is plain and more sober. And I perceive this morning that a beautiful, but rather small *Sphinx* has crawled out of the earth in one of my breeding-boxes, in which the caterpillar buried itself in September. It very much resembles the Eyed Hawk-moth *(Smerinthus Occellatus)*, but the eye-spot has two pupils. I do not think, however, that this character, the double pupil, is constant, though it has given the specific name; for in breeding two individuals, whose larvæ were taken together, in nowise distinguishable from each other, one of the perfect moths had *two* blue spots, and the other only *one*, in these *ocelli*. They were exactly alike in every other respect: it is the Twin-Eyed Hawk *(Smerinthus Geminatus)*. The wings are not deflected, but stuck out at an angle of about 45° horizontally from the body, the second pair being concealed beneath the fore ones; they are kept in almost constant vibration: the tongue or sucker is very small. Besides these which I have bred, I have taken many other species: two pretty *Bombyces*, the Snowy *(Spilosoma ——?)* and the Panther *(Spilosoma Acria)*, both of which flew into my room at night: the sexes of the latter differ from each other, the hind wings of the male being deep yellow, those of the female pure white, both spotted with black; some *Noctuæ*, among which I may mention the Angleshades *(Phlogophora Meticulosa)*; this I shook from a willow in bush-beating: among the *Geometræ*, the minute but pretty little Orangeband, *(Pyralis ———?)* and some of the Veneer moths *(Crambus)* among the *Tineæ*.

F. — I found two large hairy caterpillars of a dark greyish colour, about a week ago, feeding on the leaves of a tall herb, provincially called Indian Wickup *(Epilobium Latifolium)*; they have since spun dark brown cocoons. They

belong to the beautiful Royal Tiger Moth *(Arctia Virgo)*, and remain in the pupa state about four weeks.

C. — I must tell you of a sad misfortune that has befallen me: a rascally mouse has managed to find access to my setting-board, and destroyed a good many insects, some of them valuable ones; eating the bodies, and leaving the mangled and scattered wings.

F. — Mice seem pretty fond of insect diet, for they will always commit these depredations at every opportunity: I have myself suffered from the same cause.

C. — Look! what a congregation of butterflies on that little muddy spot! and all of one species, the Clouded Sulphur *(Colias Philodice)*. I should think there are near twenty within a square foot.

F. — This species is very fond of assembling in such places to assuage thirst, but other butterflies have the same habit: I once saw fifteen of the Tiger Swallowtail *(Papilio Turnus)* in a space not exceeding a foot square; and my brother soon after counted fifty-two of the same fine species together; besides many more which were hovering about the spot, on the wing. ——— See; here is an instance of tyranny and rapine, though on a small scale. A large flat Bug *(Pentatoma)* has caught an unfortunate caterpillar, and plunged his sucker, or rostrum, into its body; this rostrum is usually bent up under the breast; but now it is extended straight from the head, holding the caterpillar at the end of it. Observe how fiercely he holds on, and won't let me take it away from him. All the bug tribe are carnivorous, and live by sucking the juices of other insects, and sometimes of larger animals. I have succeeded in rearing plant bugs to the perfect state, by supplying them with house-flies, which I maimed and threw into the box.

C. — I have caught, near the river, one or two Day-flies

(Ephemera Cognata ?) of very large size, mottled with black and yellow, having only two anal setæ. In coming up the river St. Lawrence last summer, many of this fine species flew on board below Quebec; and the *exuviæ* of the pupæ were floating down the river in myriads. Some pretty beetles have occurred in my late researches: a small black *Cerambyx*, with curved marks of bright yellow on the elytra; *(Clytus —— ?)* a *Buprestis*, with rough elytra of a bistre brown; the upper part of the abdomen brilliant green, only visible when the elytra and wings are expanded; the under side coppery *(Odontomis Trinervia)*; a Leptura, with the fore part of the elytra scarlet, the rest black *(Nephropis Canadensis)*; I have observed, also, the Green Triangle Dragonfly *(Gomphus Vulgatissima)*, the Greater Clouded Casefly, *(Limnephilus —— ?)* and the little Scorpion-fly *(Panorpa Fasciata)*; the abdomen, in the males of this genus, terminates in a large thick knob, containing a pair of pincers, like a crab's claw; this it generally carries turned up over its back. The brilliant little Green Rubytail *(Chrysis Cyanea)* appears about the posts and walls of houses; the delicate Green Waterfly *(Perla Cydippe)* flies about the margins of brooks and rivers; and I have noticed a specimen of the Inlaid Casefly, *(Phryganea —— ?)* which appears to be a rarity.

F. — We are drawing near the edge of the woods, as you may perceive by the increasing light: we will go out, and return home.

C. — Walking in the forest would be much more pleasant if it were not so much encumbered with logs, roots, and fallen trees. Sometimes we break our shins against them, or stumble over them; at another time we step on one, and tread into a soft mass of dust and rubbish, instead of a hard log, as it appeared.

F. — "*Nulla fronti fides*" here: the bark of trees will often seem perfectly sound, when the interior is, as you observe, become a mere mass of dust, utterly gone to decay. This is owing to the greater abundance of carbon in the bark than in any other part, which resists putrefaction. The bark of the birch, in particular, appears almost incorruptible. ——— We see here an example of that continued round of decay and renovation which pervades all created, or, at least all organised, bodies. The seed falls from the tree; it shoots up a tender twig; it grows upward, drawing continual supplies of nutriment from the earth by means of its increasing roots; the slender stem slowly, but surely expands in height and thickness, till it has become a mighty tree; it continues erect, and apparently vigorous, for centuries: but time, *edax rerum*, at length prevails over its giant frame: and by imperceptible, but ceaseless attacks, robs it of life. The frost rends, and the rain rots the heart; the moss and the lichen fix themselves on its outside; the winter gales blow; and the majestic, hoary veteran bows to the blast, and descends with a rushing roar that shakes the earth. There it lies: the process of decomposition now goes on unresisted by the living principle; many agents complete the work, and at length the place of its bed is marked but by a slight, a very slight elevation of the soil. It has reverted to the same earth from which its own sustenance was first drawn, and now its elements are forming the sustenance of other trees, to perform the same round again, as long as earth shall endure.

XV.

JULY 1st.

Transformations of Insects — local Habits. — Baltimore Fritillary. — Large Sphinx. — Silver-spot Fritillary. — Tawny-edged Skipper. — Moths — rearing winter Pupæ. — Mould — Puff-balls. — Curious Beetles. — Hemerobius. — Dragon-flies. — Day-flies; — other Insects. — Giant Waterfly. — Buprsetis. — Raspberry. — Wild Strawberry. — Poke. — Sandpiper. — Blue Iris. — Redtop Grass. — White-throated Sparrow. — Large Moth.

Charles. — Perhaps one of the chief pleasures of natural history, especially entomology, is the perpetual novelty and variety we find in it: we are meeting at every turn with new and interesting facts: the endless diversity of habits, locality, structure, form, colour, to be found in insects, is such a source of pleasure, as effectually prevents us from feeling weariness or melancholy. It seems almost a contradiction in terms, for a naturalist to be in low spirits: everything he sees tends to enrapture and delight him. Among these things, one of the most pleasing is the observation of the various transformations to which insects are subject: the same individual, Proteus-like, taking new forms and presenting new objects of examination to our admiring eye. — The caterpillars of the Forked and Orange Comma Butterflies, which I took a few weeks ago, have both become pupæ, and the chrysalis of the Banded Purple (*Limenitis Arthemis*) has produced the butterfly, an insect of remarkable beauty: the contrast of the white, orange, and deep

changeable purple, is very fine. It has already become quite numerous, especially near the little brook that crosses the road below the maple grove: this place, from some cause which I am not aware of, is a very favourite resort of many species of butterflies.

FATHER. — I have noticed the same fact, having seen species there that I had not met with anywhere else; and on a fine summer day many kinds are always thronging that

BALTIMORE FRITILLARY.

(Melitæa Phaeton.)

lane. I caught, a day or two ago, in that very spot, a beautiful little butterfly, the Baltimore Fritillary *(Melitæa Phaeton)*. It is the first specimen I have ever seen in

this country, and may well be called rare. It is elegantly marked with the Baltimore colours, black and orange, with round spots of white.

C. — Here are two wings of a very large moth, that I have just picked up from the ground by the side of the road.

F. — They are the two left wings of a Sphinx, and of a remarkably large species: the insect must have measured four inches and a half in extent of wing. I have never met with the species; its colours are but dull, a plain brown drab; but you see, on the under side of the hind wing is a large cloud of dull crimson near the base.* These wings have no doubt been snipped off by some bat, or night hawk, which had caught the moth: if its body corresponded with its wings, it would form a good meal for a bat.

C. — The Silver-spot Fritillary *(Argynnis Aphrodite?)* is becoming common: this is a fine butterfly, for though its upper surface is of rather a dull tint, the number and beauty of the bright silver spots beneath are sufficient to redeem it.

F. — It is a common butterfly throughout the summer; but the Banded Purple makes quite a short stay with us; it becomes very numerous all of a sudden, but by the beginning of August they have all disappeared, with the occasional exception of a straggler.

C. — Among the clover blossoms, hundreds of little Skippers are dancing in their peculiar jerking way from flower to flower. The Yellow-spot *(Pamphila Peckius)* is abundant, and another species much resembling it, the Tawny-edged Skipper *(Pamphila Cernes)*. Two new *Bombyces* were evolved a few days since from caterpillars taken last fall; one of them is very pretty, the Silver-spotted Buff *(Pygæra*

* It is not described in Dr. Harris's recent monograph of the American Sphinges.

Gibbosa). I have obtained several new species of *Noctuæ*, among which is the Gamma Moth *(Plusia Gamma)*, so common in England, with *Geometræ*, *Tortrices*, and *Tineæ*; two of these last, belonging to that very elegant division called Veneer Moths *(Crambus)*, and another to a division of very minute moths, *(Microsetia ?)* known by their burnished metallic appearance.

F. — You have been fortunate in rearing your winter pupæ.

C.—Yes; I have scarcely lost one out of a great number that I wintered. I pursued a plan that you recommended; late in the fall, after the *Bombyces* had all spun their cocoons, I buried the breeding-boxes in the earth, very lightly covering them. In the spring, as soon as the ground was free from frost, I dug them out, and have been rewarded for my trouble, by some fine moths. On first opening the boxes, all the inside was clothed with a fine white downy mould, nearly an inch high, but impalpable.

F. — I was induced to recommend that plan, on account of my own failures: in the preceding winter, I had upwards of fifty pupæ, chiefly *Bombyces*, which I kept in their boxes in a dry cupboard. — In the spring, I had scarcely a single imago out of that number, the pupæ being dead and dry. I then considered that to be successful, I must adhere more closely to their habits in a state of nature: we usually find the cocoons of *Bombyces* in the spring, on the ground beneath large stones, boards, &c., where the earth affords them the moisture necessary to life, and the snow probably secures them from congelation. For this reason, I advised you to bury them lightly; and it seems the result has answered my expectations.

C. — The appearance of the mould struck me as being curious. I know it is a vegetable production; but how could its seeds have found access into my shut boxes?

F. — The propagation of mould is one of the most curious subjects in vegetable physiology. The seeds or germs of the future plants are supposed to be continually floating in the atmosphere, and do not spring up till a suitable degree of heat and moisture developes their vegetative power.

C. — The Puff-balls, so common in our pastures, are singular things.

F. — They do not look much like plants, either when the inside is a soft green mud, or when it is become ripe, and resembles a lump of fine sponge, dipped in a box of impalpable snuff. If these atoms of dust be the seeds of the plant, as is supposed, it is surprising to me that the land does not become completely covered with them, instead of being scattered, as they are, here and there, half a dozen on an acre.

C. — Are they considered pernicious by agriculturists? or is any effort ever made to check their increase?

F. — Not that I am aware of: our farmers here do not think them injurious, except inasmuch as they are useless encumbrances, and draw nourishment from the soil: the evil is not of sufficient extent to alarm the farmer's fears. I believe their presence is considered, with what truth I know not, an indication of land whose fertility has been exhausted, as they do not infest the soil when in a high state of cultivation.

C. — Here are two curious insects, with the fore wings black, with two orange bands, and very thick pectinate antennæ: what are they?

F. — I have been puzzled by them myself; having even doubted to which order they should be referred; but further observation showed me that they are beetles, with flat and very flexible broad elytra (*Lycus Reticulatus*). I have found another species, of about the same size, one-third of an inch in length, and resembling it in every respect, except

that the elytra are half orange and half black, or very deep blue. As in this case, they are deeply furrowed, and the hind wings are smoky black *(Lycus Terminalis)*.

C. — As I was roaming on the bank of the river yesterday, near the bridge, I caught a large black *Hemerobius*, the wings banded and spotted with white *(Hermes ——?)* Great numbers of Dragon-flies were flying over the water, many of them in coitu, in the form of a circle, having a very singular appearance. Towards evening, I noticed several Day-flies *(Ephemera)*, dancing in the air above the river. I observed that they alternately fluttered perpendicularly upwards for about ten feet, and then sunk down with closed erect wings; the anal bristles held perpendicularly and diverging: then they would flutter up and sink again; continuing these motions over one spot, till I left them.

F. — The Brush-footed Bee *(Megachile Willughbiella)* and the Green and crimson Elater, *(Elater Metallicus?)* both natives of Newfoundland, I have observed here lately. — There are not nearly so many species of insects common to that country and this, as I should have expected from their proximity. It is stated by Linnæus, if I mistake not, that *twelve* degrees of latitude make almost a total change in the insect species; but probably much difference is also caused by the situation of a country: for instance, between the coasts of an island, as Newfoundland, and an inland region, as this part of Canada.

C. — A lad gave me, yesterday, a Water-fly of very large dimensions, measuring about three inches and three-fourths in spread of wing. It is of a dusky colour, and the nervures of the wings are of the same; its claims to notice are only its enormous size, as compared with other species of the genus, for it has no beauty. It is *Pteronarcys Regalis*.

GIANT WATER-FLY.

(Pteronarcys Regalis.)

F.—I have taken a very large species *(Pteronarcys Proteus)* at Sherbrooke, near the junction of the Magog River with the St. Francis; but I have not any specimens now. It is not, however, near so large as yours, but resembles it in colour.

C.—A handsome *Buprestis (Stenuris Divaricata)* is now occasionally seen; chiefly on trunks of trees, rails of the fence, &c. The Buprestis, I believe, inhabits wood in its earlier stages, which accounts for the perfect beetle's frequenting such situations, having, perhaps, just emerged into daylight from its long imprisonment; or, perhaps reconnoitring for the purpose of laying eggs, for a new generation. This one has the upper parts metallic brown, the under parts shining coppery; and the elytra, which are sculptured, terminate in lengthened points or tails. I have taken a larger species *(Anoplis Rusticorum)*.

F. — The genus Buprestis is remarkable for the general beauty of its species; most of them being characterized by a metallic brilliancy of colour. We have several species here. I have lately observed two species of *Coccinella*, which I have seen in Newfoundland, but which appear to be scarce here; one is the beautiful Scarlet Ladybird, *(Coccinella 5-notata ?)* so very common there; the other is the Banded Ladybird. *(Coccinella —— ?)*

C. — The Wild Raspberry *(Rubus Ideus)* has been in blossom about a week; and on some bushes I perceive the fruit is beginning to form. The Wild Strawberry *(Fragaria Virginiana)* is ripe, and quite abundant: it is of a pleasant flavour, but far inferior in size to the cultivated species. Here is a rather handsome plant; do you know its name?

F. — It is commonly called the Poke, and its root is considered by the common people as poisonous. Its botanical appellation is *Veratrum Viride*. It has not the slightest resemblance to the plant called Poke in the south *(Phytolacca Decandria)*. This plant resembles some of the large liliaceous plants; it dies to the root every year, and in the spring sends up a large bulb of broad, lance-oval leaves sheathing each other: the leaves have deep plaits running their whole length, like a half-closed fan. From the centre shoots a stalk sometimes three feet high, bearing a spike of small plain greenish flowers at the top; as you see, for it is now in blossom: these are succeeded by dry seed vessels, which open and drop their seeds. The plant is most common in the black swampy earth of the evergreen woods, and does not often grow in clearings, except by the side of pools of water in low grounds, as here. The flowers have no beauty, but the large leaves give it rather a noble appearance.

C. — What pretty little bird is that, running along with such nimble feet on the bank?

F. — I believe it is one of the Sandpipers (probably

Tringa Semipalmata, or *T. Pusilla)*; this numerous tribe is so much alike in general appearance, that it is not easy for a common observer to know the species, without an accurate examination and comparison. A few may be seen every summer, just at this spot, but I have never met with them in any other. The land here is low; scarcely above the bank of the river, which flows close beside the road on one hand; and on the other is a large pond and marsh; the latter clothed with willows, bushes, and rushes. The road, you observe, is raised up, like a causeway; yet in spring, when the river is swollen by the melting of the snows, it overflows this part of the road, and, with the adjacent pond, makes the surrounding meadows look like a miniature sea. On the sandy banks of this pond the little sandpipers run to and fro, picking up worms, insects, and small testacea. They run very fast, but do not readily fly, and when they do, it is only to a few yards, alighting again immediately. Many plants and animals seem in some degree peculiar to this spot; though no doubt there are many other situations having the same character and equally congenial to their habits, where the same species may be found. A large and handsome flower, the Blue Iris *(Iris Versicolor)*, haunts this place; the beautiful blossom may now be seen capping the curious sword-shaped leaves.

C. — What a light and feathery appearance a field of grass has at this season! To what is it owing?

F. — The Red-top Grass *(Agrostis Vulgaris)*, of which this field is chiefly composed, is now in flower: the blossoms of this grass grow in a large loose panicle, the anthers project from the glumes, and it is they that cause this downy lightness.

C. — I have several times heard in the woods a very sweet but singular note, the author of which I cannot discover. It consists of six notes deliberately uttered, the first

low, the other five about four tones higher, and all alike, so clear, and shrill, and musical, that I have been quite charmed with the sound. The higher notes are something like the strokes on a small silver bell, and are frequently shaken or trilled.

F. — I have heard the notes hundreds of times, both here and in Newfoundland, where it is very common, and have had very great curiosity to know the author. They usually proceed from the thick woods, and the bird is too shy to allow approach: one day, however, I heard it proceeding from one of the plum trees in the orchard; I crept cautiously to the spot, without disturbing it, until I arrived directly under the tree, within a few feet of the bird, which, while my eyes were fixed on it, whistled its sweet but simple song. It was the White-throated Sparrow *(Fringilla Albicollis)*; a pretty bird, the upper parts spotted, like most of the Sparrows, with bay, brown, and black, the head handsomely striped with white and black, and the under parts white. I have never seen the bird since. Its song, though heard at all times of the day, is chiefly uttered early in the morning, and in the evening; and even sometimes continued till darkness has spread her curtain over the earth, at which time it has a pleasingly solemn effect.

C. — Did you see that very large moth that just darted along, over our heads?

F. — No: but I have seen several lately, in the dusk of the evenings, of very large size, but too indistinctly to identify them: they are no doubt *Saturniæ*, and would be a noble addition to your cabinet; but it would be vain to pursue them at this late hour, as they are almost instantly lost in the darkness. — Now you have an opportunity of seeing an assemblage of Fireflies, which I described to you a

few days ago. Cast your eyes over yonder meadow below the road, and observe the millions of bright sparks dancing there, and over the river.

C. — It is indeed a sight to be admired: I can compare it to nothing that I have ever seen. It is something like the stars on a clear winter's night, but the redness of the sparks, the regular emission and concealment of light, and the continual mazy evolutions which every one performs, give it quite a unique and singular, and certainly a most beautiful, appearance.

XVI.

JULY 15th.

Climate.—Thundershower.—Subsequent Freshness.—Fog.—Agricultural Productions.—Weeds.—Canada Thistle.—Burrweed.—Spurry.—Blue Bird.—Baltimore Oriole.—Humming Birds.—Dewberry.—Raspberry. —Timothy Grass.—Indian Wickup. — Orange Lily. — Fox-coloured Sparrow.—Orange Comma Butterfly.—Pearly Eye.—Eyed Brown.—Compton Tortoise.—Remarkable variety of Forked Butterfly.—Banded Purple.—Dragon Moth.—Cœrulean.—Pink Arches.—Twin Gold-spot. —Clouded Cream.—Spotted Lemon.—Drab Plume.—Caterpillar of Vapourer,—of Grey Comma Butterfly.—Dragon Fly.—Hoof Boletus.—Toad Beetle—its Larva and Pupa—Habit of counterfeiting Death.—Skunk—its fetid Odour—Mode of Emission—Habits.—Blue and Gold Cerambyx.—Black and Yellow Whame-fly.—Punctured Beetle.—Sweet-scented Milkweed.—Resort of Insects.—Dandelion. — Scattering of Seeds.

CHARLES. — What a strange climate is ours! a climate of extremes. A few months ago the thermometer was down to 30° below Zero: now it is ranging from 90° to 100° above: showing an annual range, that perhaps scarce any other part of the world can equal.

FATHER. — It has been very hot lately; and the cloudless atmosphere, through which the sun darts the full blaze of his beams, makes the heat in the open air exceedingly oppressive, almost too hot to labour. But the thunderstorm of last evening cooled the air, and laid the dust, which rose before in choking volumes.

C. — I never before saw rain anything like it: the large hail preceding it; then the shower itself, coming down in dense sheets, and the drops so large and heavy! why, the roads, with all their thick beds of dust, in five minutes were mere water-courses. And how vivid the lightning! coming from no particular point, but appearing to fill the sky with one blaze, followed in quick succession by deafening roars of thunder, dying away and taken up again in repeated echoes! It was quite appalling.

F. — A great evil needs a strong remedy: a gentle rain would not cool the air sufficiently to be attended with any lasting benefit; nor would it have wet the earth to such a depth. But the change in the air is chiefly caused by the sudden restoration of the equilibrium of the electric fluid, which had been destroyed by the great heats. After the storm had ceased, a more beautiful scene, though not so terrifically sublime, was presented by the lightning, which continued to play in the clouds around the horizon, after the thunder had ceased to be heard, and the sky over head had recovered its azure serenity. Long after sun-set, the horizon was ever and anon lighted up with brilliant flashes, sometimes cleaving their zigzag path apparently through a dense cloud, then shining behind, and round the edge of a black mass of cloud, which was shown in full distinctness and dark outline.

C. — I have often seen in summer evenings, gleams of lightning around the horizon, unaccompanied by thunder: it is called by some people, "summer lightning;" does it differ in its nature from that which is followed by thunder?

F. — I believe not: the cause of the thunder's not being heard is, as I suppose, nothing more than its distance: light being visible at an incomparably greater distance than sound is audible. We sometimes see summer lightning at evening, even when the horizon-sky seems perfectly clear and cloud-

less: in that case I presume we do not see the flash itself, but the illumination of the atmosphere consequent on it; the reflection in the sky, as it is called; the clouds containing the electricity being beneath the horizon, and therefore invisible.

C. — What an exhilarating freshness and purity there is in the air, this morning; similar to that which is perceived on mountain summits, or any great elevation.

F. — For this we are indebted to the trees and plants around us: all vegetables give out *oxygen* by day, the life-giving part of the air we breathe; but after the excitement of a thunder-storm, it is evolved in much greater profusion, which has a refreshing and enlivening effect on animal spirits.

C. — How delightfully fresh and green the trees and herbage look! the leaves are yet sparkling with the rain-drops: see the long, seedy grass bowing its heavy head under the weight of moisture; what a silvery appearance it has! it is almost ready for the scythe.

F. — Let us climb this hill, whence we may look down on the lowlands and bottoms. — I should have rather said, we can look *towards* them; for I perceive they are hidden by a dense film of mist or fog, that lies upon them.

C. — What is the cause of its covering the land so partially?

F. — When the rain fell last night, the earth had been heated to a considerable extent: much of the water was evaporated, and rose in invisible vapour, but now that the morning air is cool, the vapour is condensed, and falls in the form of a thick fog upon the low lands. Often during a season of dry weather, if we stand on a hill at early day light, we may trace the river through all its circuitous windings through the forest, (though no part of it is visible,) by the belt of white fog which hangs over it, but which is

quickly dissipated by the beams of the sun. This phenomenon only occurs during the hottest part of summer.

C. — The farmer begins to see some promise of a reward for his exertions: the potatoes have been in blossom for several days, and so have the peas; oats and wheat are coming into ear. At a short distance beyond Sherbrooke, I saw a field of wheat in ear, as early as the 6th of this month.

F. — A field of potatoes in blossom has, in my opinion, a very fine appearance, from the rich luxuriance of the vegetation; the dark green hue contrasting with the delicate lilac blossom. The regularity of the rows adds to the effect, if they are kept clean and free from weeds; but this is a difficult task, and requires a great deal of attention and labour.

C. — What are the chief weeds we have to contend with?

F. — I have already mentioned the Canada Thistle *(Cnicus Arvensis)*; but even that vile plant is not so bad as the Burrweed *(Galeopsis Tetrahit)*, which is spreading over our fields, and ruining our farms. This is a vigorous plant, growing from a creeping root, which is, I believe, perennial; though the plant is annual: it has a tall branchy stem, and leaves like those of a nettle; it bears a pretty white labiate flower, succeeded by large burrs or seed-vessels, covered, when ripe, with hard, sharp prickles, defying the touch. It produces seeds in most prolific abundance, which are unfortunately scattered before our grain is cut; and as it spreads from the root as well as the seed, there appears no way to eradicate it, but pulling up every plant. But in doing this, the root often breaks, and leaves a part in the ground, to become the progenitor of a new stock of weeds. Besides this, wherever this spinous weed grows with wheat or other grain, a great deal of the latter is obliged to be wasted, as it cannot be reaped; for no man can put his hand into a bed of burrweed with impunity. In short,

THE

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